

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 64-082676

(43)Date of publication of application : 28.03.1989

(51)Int.Cl.

H01L 29/80
H01L 21/205

(21)Application number : 62-242003

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(22)Date of filing : 25.09.1987

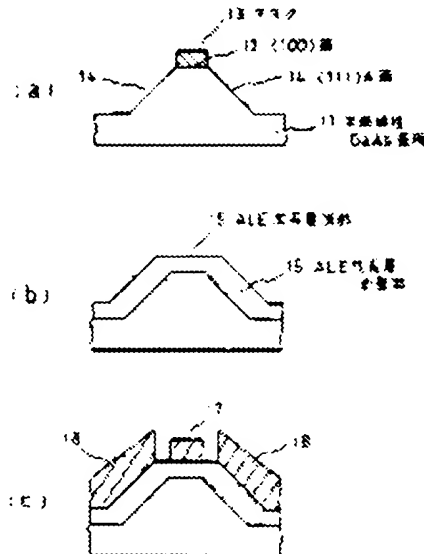
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(54) III-V COMPOUND SEMICONDUCTOR FIELD-EFFECT TRANSISTOR AND MANUFACTURE THEREOF

(57)Abstract:

PURPOSE: To form a FET of high quality having low source resistance of source, drain regions by providing the source, drain regions on the sidewall of plane 111A of a forward mesa structure formed on a semi-insulating substrate of plane 100 and a gate region on the surface of plane 100 of the top of the forward mesa structure.

CONSTITUTION: After the surface 12 of plane 100 to become a gate region of a semi-insulating GaAs substrate 11 is masked with an SiO₂ film 13 and the surface 14 of plane 111A to become source, drain regions is formed with etchant, the mask 13 is removed. Then, GaAs is ALE-grown on the substrate. An Se impurity is planely doped at each 10 layers of the GaAs. Eventually, a WSi heat resistant gate electrode 17 is formed on the top 15 of the ALE-grown layer, and contact electrodes 18 to become source, drain are formed on the wall 16 of the ALE-grown layer side by alloying AuGe alloy and an n-type layer. Thus, the contact resistivity of the source, drain regions with the electrodes is extremely reduced, and preferable FET characteristics are obtained.



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[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]